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**Office of
Environmental
Management**

*Defense
Environmental
Management
Privatization
Annual
Report
for FY 2002*



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**"National Defense Authorization Act for Fiscal Year 1998," Title XXXI, Subtitle C, Sec. 3132,
Defense Environmental Management Privatization Projects**

Executive Summary

This is the sixth annual report submitted by the Department of Energy's (DOE) Office of Environmental Management (EM) on the activities carried out under privatization contracts funded under the Defense Environmental Management Privatization Account. It covers EM's privatization activities during fiscal year 2002. This report has been prepared in accordance with the National Defense Authorization Act for Fiscal Year (FY) 1998, Title XXXI, Subtitle C, Section 3132, "Defense Environmental Management Privatization Projects" (included an Attachment A to this report). Information on scope, risk allocation, budget and cost, schedule, and management approach for contracts covered under this appropriation is provided as required in Subsection (e) of Section 3132. The report contains an Executive Summary and two Chapters: Chapter 1 describes the objectives, focus and challenges of the EM Privatization Program; and Chapter 2 contains a description of each current privatization contract.

The primary objective of the EM Privatization Program is to purchase end products or services through open competition and fixed-price arrangements, and to gain an edge through private sector best-in-class management capability, business strategies, technological approaches, schedule enhancements, regulatory experience, and cost efficiencies. The Department believes that the Privatization Program is a cost-effective approach for selected EM projects.

Progress continues to be made on EM's privatization projects for which there are six active contracts: the Idaho Advanced Mixed Waste Treatment Project (AMWTP), the Idaho Spent Nuclear Fuel Dry Storage Project, the Oak Ridge Transuranic Waste Treatment Project, the Oak Ridge Reservation Environmental Management Waste Management Facility Project, and two contracts for the Carlsbad Remote-Handled Transuranic (RH-TRU) Waste Transportation Project.

The contractor for the Idaho AMWTP, British Nuclear Fuels Limited (BNFL), started construction of a new waste treatment facility in August 2000. AMWTP construction was completed in December 2002. The project is on schedule to begin operations by March 31, 2003, in accordance with the 1995 Idaho Settlement Agreement and Consent Order. As part of the March 26, 2000 Settlement Agreement, the Department has postponed the incinerator component of the facility. Alternative waste treatment technologies and regulatory options that would support waste disposition without the need for incineration are now being evaluated.

On May 19, 2000, the Idaho Operations Office awarded a contract to Foster Wheeler Environmental Corporation (FWENC) for the Idaho Spent Nuclear Fuel Dry Storage Project. The contractor is required to furnish all goods and services required to place and maintain selected DOE-owned spent nuclear fuel at the Idaho National Engineering and Environmental Laboratory (INEEL) in dry storage units that are also suitable for future off-site transportation. FWENC submitted its license application to the Nuclear Regulatory Commission (NRC) in November 2001 as scheduled. The NRC docketed the license application for review in March 2002, and provided a schedule for review that would result in issuing the license in March 2004. However, the NRC's licensing schedule could delay the currently planned start

of construction and subsequent milestone dates. As part of the licensing process, the NRC is required to prepare an Environmental Impact Statement (EIS). The scoping period for the EIS closed in September 2002. The Draft EIS is scheduled for release in May 2003 with the Final EIS targeted for December 2003. The design of the facility is 90 percent complete.

Significant progress was made on the two Oak Ridge projects during FY 2002. The Oak Ridge Transuranic Waste Treatment Project contract was awarded to FWENC in August 1998. The Final EIS was issued July 2000 and the Record of Decision was published in August 2000. Construction began in February 2001 and continued throughout FY 2002. The initial construction focus has been on the supernate processing portion of the facility which was completed in December 2002. Supernate processing operations are expected to begin in March 2003. Contract milestones related to other aspects of the construction and treatment schedule are being modified to be consistent with the Waste Isolation Pilot Plant's ability to receive remote handled transuranic waste.

The Oak Ridge Reservation Environmental Management Waste Management Facility Project Record of Decision (issued pursuant to the Comprehensive Environmental Response, Compensation and Liability Act) authorizing design, construction, operation and closure of the low level waste disposal facility was signed in November 1999. A subcontract from the Oak Ridge Reservation Management and Integrating contractor was awarded December 1999 to Duratech Federal Services, Inc. Final design was submitted to the EPA and the Tennessee Department of Environment and Conservation for approval in January 2001. Construction of the disposal facility began in March 2001 after receiving regulatory approval. Facility construction was completed in April 2002 and the first load of low-level waste was disposed of in May 2002. By September 2002, 96,000 tons of waste had been disposed in this facility. In FY 2003, a subcontract award to build out the facility to hold an additional 800,000 yd³ of disposal capacity is expected.

Two contracts for the Carlsbad Remote-Handled Transuranic Waste Transportation Project were awarded in August 2000. The purpose of the project is to fabricate containers to ship RH-TRU waste to the Waste Isolation Pilot Plant. NAC International (NAC) and Packaging Technology, Inc. (PacTec) will each fabricate six RH-72B shipping casks with the potential for more if DOE exercises the contract options. During 2002, the Department accepted four RH-72B casks from PacTec. An additional cask from PacTec is in review and the first cask from NAC is also in review. Acceptance of these additional casks is expected in 2003.

1. Introduction

1.1 Objectives of the Department of Energy (DOE) Environmental Management (EM) Privatization Program

The primary objective of the EM Privatization Program is to purchase end products or services through open competition and fixed-price arrangements in order to gain an edge through private sector best-in-class management capability, business strategies, technological approaches, schedule enhancements, regulatory experience, and cost efficiencies. Privatization allows the Department to move work which has historically been performed using Management and Operating (M&O) or Management and Integrating (M&I) contractors at government-owned, contractor-operated facilities into the private sector with potentially significant cost and schedule benefits to DOE.

The Department believes that the Privatization Program is a cost-effective approach for selected Environmental Management projects for several reasons. First, shifting substantial performance risk to the contractor provides greater incentives to contractors to complete their projects on schedule and within budget. In addition, utilization of performance-based contracts for delivery of end products or services provides financial incentives for contractors to maintain excellence (*e.g.*, emphasizing safety and quality, while improving efficiency and reducing costs) in their operations.

A further advantage of EM's privatization approach is that it requires full, up-front life-cycle project planning and integration, cost-effectiveness analysis, and clearly-defined cost and schedule estimates. Therefore, the use of privatization for appropriate projects is expected to result in cleanup being accomplished more cost-effectively and quickly in comparison to the traditional M&O/M&I contractor approaches in support of the EM vision of completing substantial cleanup at EM sites within the next decade. Accordingly, EM will continue to look for and pursue innovative contracting strategies on a case-by-case basis.

1.2 Current Privatization Contracts

The EM Privatization Program will continue to focus on improving the management of existing privatization contracts. This ongoing work includes:

- Strengthening EM's privatization management system, conducting independent cost estimating and project reviews, and communicating with independent agencies providing oversight to the EM Privatization Program.
- Continuing implementation of awarded EM Privatization contracts. These projects are summarized in Table 1-1. The purpose, background summary, status, costs, schedule/milestones, risk and liability sharing, and issues for the contracts are described in Chapter 2 of this report, "Contract Reports for Awarded Privatization Projects."

Table 1-1. Summary Schedule for EM Privatization Projects

Project Name	Contract Award Date
Advanced Mixed Waste Treatment Project (AMWTP), Idaho Falls, Idaho	December 20, 1996
Transuranic Waste Treatment Project, Oak Ridge, Tennessee	August 20, 1998
EM Waste Management Disposal Facility, Oak Ridge, Tennessee	December 6, 1999
Spent Nuclear Fuel Dry Storage, Idaho Falls, Idaho	May 19, 2000
Remote-Handled Transuranic (RH-TRU) Waste Transportation Project, Carlsbad, New Mexico (2 contracts)	August 14, 2000

Note: Section 3132 of the National Defense Authorization Act of 1998 specifies the requirements for the contents of the Defense Environmental Management Privatization Annual Report (see Attachment). This includes information on scope, risk allocation, budget and cost, schedule and management approach. The FY 2002 Annual Report provides a status update on these categories. If the status of a particular item did not change in FY 2002 from information provided in previous reports. (e.g., cost savings to be realized) it has not been included in this annual update.

2. Contract Reports for Awarded Privatization Projects

2.1 Idaho Advanced Mixed Waste Treatment Project

2.1.1 Purpose

The goal of this project is to prepare 65,000 cubic meters (m^3) of retrievably stored defense waste located at the Idaho National Engineering and Environmental Laboratory (INEEL) for disposal. In December 1996, DOE awarded a contract to British Nuclear Fuels Limited (BNFL) to provide the required waste management services. These services include: retrieval of the waste from existing storage, characterization of the waste for treatment and/or disposal, treatment of the waste, certification of the final waste form for disposal, and packaging the waste in approved containers for shipping to a disposal site. The contract has an option, which, if exercised, would allow for treatment at the Advanced Mixed Waste Treatment Project (AMWTP) facility of up to 120,000 m^3 of similar waste from other INEEL activities and other DOE sites, in addition to the base contract quantity of 65,000 m^3 . The project meets all current regulations and requirements.

2.1.2 Background Summary

DOE has been storing waste contaminated with transuranic (TRU) isotopes at INEEL since the early 1970s. Most of this waste came from the DOE Rocky Flats Plant and is in drums and boxes placed on an asphalt pad at the Radioactive Waste Management Complex (RWMC) at INEEL. The waste is covered with tarps, plywood, and soil, the combination of which is referred to as an earthen-covered "berm". Some waste is also stored in metal enclosures at the RWMC. The total volume of waste is approximately 65,000 cubic meters (m^3)¹.

The drums and boxes in which the waste is stored have a 20-year design life and were not intended to provide permanent containment of the waste. The drums and boxes in the earthen-covered berm are subject to breaching and failure through corrosion or decomposition, creating a potential for the wastes to be released into the environment.

Since being awarded the contract, BNFL's approach to providing the required services has included permitting, design, and construction of a facility to prepare the 65,000 m^3 of waste for disposal. The facility would prepare this waste for shipment to the Waste Isolation Pilot Plant (WIPP), or another appropriate facility, for disposal. The preparation process will involve sizing and repackaging the waste into standardized containers, eliminating excess liquids and corrosive characteristics, and minimize hydrogen gas generation.

¹ A portion of this waste, i.e., 3,100 m^3 , was processed by the INEEL Management and Operating Contractor using existing facilities to meet a December 31, 2002, milestone contained in the Idaho Settlement Agreement. The AMWTP contract includes a provision to process additional wastes to make up for the 3,100 m^3 processed by the M&O contractor.

Initially, the AMWTP consisted of three phases one of which has been completed and the second is nearing completion. Phase I included the environmental, safety and health permitting, and preliminary design. Phase II involves final design, construction, and systems operational testing. Phase III includes the operations, decontamination, and decommissioning of the facility and Government furnished equipment.

2.1.3 Status

Phase I has been successfully completed. Detailed design of the overall facility was completed in July 2002. Phase II facility construction was completed in 2002. Phase III operations are scheduled to commence by March 31, 2003. The project is moving forward without incineration (see Issue, Section 2.1.7). As a result, DOE is evaluating technological and regulatory alternatives for treatment of a small portion of the waste (estimated to be five percent or less), containing PCBs and other organic material, that would have gone to the incinerator. Under this AMWTP waste management services contract, BNFL is ultimately responsible for selection, permitting and implementation of any alternative technology that may be required.

The safety and health aspects of the project continue to progress favorably. The Environment, Safety and Health Program Operating Plan (ESHPOP) defines the ES&H requirements to which BNFL will perform construction and operations of the facility to ensure a high level of environment, safety and health performance over the life of the contract. The ESHPOP was completed and approved by the DOE Idaho Operations Office (DOE-ID) in 1998, and is reviewed and updated annually. A Preliminary Safety Analysis Report (PSAR) was prepared by BNFL and approved by DOE-ID in June 1999. Subsequently, a Basis for Interim Operation (BIO) for BNFL's waste stewardship and construction modification of the Transuranic Storage Area Retrieval Enclosure was approved in May 2001, later followed by DOE approval in October 2002 of the Documented Safety Analysis (DSA) for waste retrieval operations. These documents are part of an Authorization Agreement between DOE-ID and BNFL. An initial Authorization Agreement governing construction activities was signed by DOE-ID and BNFL in November 2000.

An Environmental Impact Statement (EIS) for the project was completed in accordance with the National Environmental Policy Act (NEPA) and was published by DOE in February 1999. The EIS Record of Decision was issued by DOE in March 1999.

Approval to proceed with construction under the National Emission Standards for Hazardous Air Pollutants (NESHAPs) was granted by the Environmental Protection Agency (EPA) Region 10 in October 1998. The final Resource Conservation and Recovery Act (RCRA) Permit and Clean Air Act (CAA) Permit to Construct were issued by the Idaho Department of Environmental Quality (IDEQ) on July 19, 2000. Under current regulatory requirements, the AMWTP would also require a Toxic Substances Control Act (TSCA) Permit for the treatment and disposal of PCB-contaminated waste. However, the need for a TSCA Permit is on hold as a result of DOE's ongoing evaluation of technological and regulatory alternatives to incineration for treating waste in compliance with TSCA (see Issue, Section 2.1.7). Construction of the AMWTP started on August 22, 2000. Delays in receipt of the final regulatory permits impacted the construction start date. However, this has not affected the project

schedule under the contract to begin operations by March 31, 2003, in accordance with the 1995 Idaho Settlement Agreement and Consent Order. The associated contract price impact for project schedule compression due to this delay and firm end-date is currently under negotiation.

2.1.4 Costs

The AMWTP contract is a fixed-unit price contract with economic price adjustment and price re-determination clauses. Economic price adjustment only applies to the operating portion of the fixed-unit price. Price re-determination does not occur until after 25,000 m³ of waste are processed. The costs in Table 2-1 include a factor for economic price adjustment. The Government assumed the risk of statutory or regulatory changes issued by EPA or the State after August 1, 1996, that might impact AMWTP design and/or operations. This has resulted in a negotiated change in price of \$550,000.

The AMWTP funding requirements for facility construction and operating costs for treatment of the 65,000 m³ of waste are summarized in Table 2-1. The Phase I cost of \$16.4 million is based on the fixed-price contract. The total Phase II facility construction price of \$632.7 million is also based on the fixed-price contract and reflects pending and anticipated Requests for Equitable Adjustments (REAs). The Phase III facility operating costs (\$478.5 million), decontamination and decommissioning cost (\$58.8 million) and AMWTP EIS and other project office costs (\$16.6 million) are forecasted to reflect escalation from FY 1996 constant dollars, in accordance with the AMWTP contract and DOE budget guidance. The FY 2004 Congressional Budget Request identifies a total project cost to the Government of \$1,209.2 million, which includes \$6.2 million in M&O project-related support costs.

DOE has made operating fund outlays for Phase I of \$16.4 million. The Phase II facility construction and startup price will be provided from privatization funding that is paid through amortization on a per unit processed basis during Phase III. Operating funds will be provided for Phase III processing unit prices, AMWTP EIS and other project-related support costs, and eventual decontamination and decommissioning costs. Privatization fund outlays are expected to begin in FY2003.

Table 2-1. Advanced Mixed Waste Treatment Project Costs

Item	Contract Type	Current Estimated Project Costs
Phase I Permitting Costs	Fixed-Price	\$16.4 million
AMWTP EIS and other project-related support costs	Cost-Plus-Incentive-Fee	\$16.6 million
Total Estimate Cost (TEC): Phase II Construction/Startup Costs	Fixed-Price and REAs	\$632.7 million
Phase III Facility Operating Costs	Fixed-Unit Price	\$478.5 million
Decontamination and Decommissioning	To be determined	\$58.8 million
Total Project Cost for 65,000 m³	N/A	\$1,209.2 million

2.1.5 Schedule/Milestones

The overall project schedule, as presented in Table 2-2, is based on current project planning, including milestones established in the INEEL Settlement Agreement and the INEEL Federal Facility Compliance Act Site Treatment Plan.

Table 2-2. Advanced Mixed Waste Treatment Project Major Milestones

Major Milestone	Date
Phase I Permitting Complete	July 19, 2000 (complete)
Initiate Phase II (Facility Construction)	August 22, 2000 (complete)
Complete Phase II (Facility Construction)	December 31, 2002 (complete)
Commence Phase III (Facility Operations)	March 31, 2003
Remove 65,000 m ³ of waste from the state of Idaho	Target date of December 31, 2015, but no later than December 31, 2018
Start Decontamination and Decommissioning	January 1, 2016 (depending on the quantities of waste treated under Option 2 of the contract, if executed)

2.1.6 Risk and Liability Sharing

DOE retains certain risks and responsibilities that were considered appropriate for the Government to assume under this contract, including acts of God, changes in law or regulations, congressional appropriations, termination for the convenience of the government, and wastes that fall outside of the contract waste acceptance criteria. Under this contract, BNFL has assumed considerable financial, technical and schedule risks. As a result BNFL, is responsible for: designing, constructing and operating a facility that will deliver acceptably-packaged waste for disposal; any environmental releases of waste materials prior to waste product acceptance by DOE; and disposal of waste treatment by-products. Payments to the contractor are authorized as wastes are certified as being acceptable. BNFL has also assumed financial responsibility for:

- RCRA Closure
- Liabilities for which it has failed to obtain required insurance
- Liabilities caused by errors, omissions, or negligence related to professional services
- Liabilities caused by willful misconduct, lack of good faith, or failure to exercise prudent business, technical, or environment, safety and health judgment by identified high-level BNFL supervisors and agents

In addition, the AMWTP contract makes the contractor responsible for fines and penalties when its action/inaction is cause for delays or failure to meet regulatory milestones and requirements. Also, BNFL

was required to sign the full RCRA certification on the Part B permit application as sole owner/operator of the facility. DOE signed the RCRA permit application as landowner. The AMWTP contract also requires the establishment of a sinking fund by the contractor to ensure sufficient funds are available for RCRA closure of the treatment facility following treatment of all waste. It also provides for the transfer of the funds to DOE or its designee to carry out closure activities in the event the contractor does not complete performance of the contract.

The contract contains Federal Acquisition Regulation clauses covering contractor default and termination for convenience by the Government. Special default language was included to cover the Government's liability for RCRA closure funds and, in the event the facility is contaminated, allows DOE to seek recovery of all costs for closure from BNFL. Also, there are option clauses allowing DOE to take title to the privatized facility, transfer permits, and take technical and design data necessary to operate the facility if BNFL fails to complete the contract.

The contract contains a performance guarantee by which BNFL plc, the parent company of BNFL, guarantees full and prompt performance of the contract. BNFL's liability under the performance guarantee is limited to not more than 25 percent of the total price for performance of all phases of the work under the contract, including the price for treatment of optional quantities of waste identified.

In summary, compared with the traditional DOE approach, where DOE accepts a majority of the contract risk under a cost-type contract, significant financial and performance risk has been shifted to BNFL, with significant projected cost savings/cost avoidance.

2.1.7 Issues

Pursuant to the March 2000 Settlement Agreement involving the incinerator component of the AMWTP, regulatory and technological alternatives for the relatively small amount of waste that was planned for incineration at the AMWTP are being pursued. DOE is optimistic that regulatory and technological solutions will be found that will reduce or eliminate the need for incineration.

2.2 Oak Ridge Transuranic Waste Treatment Project

2.2.1 Purpose

The purpose of the Oak Ridge Transuranic (TRU) Waste Treatment Project is to successfully process transuranic and liquid low level waste (supernate) for final disposal in a manner that is safe and efficient and that provides the best value to the taxpayer. The primary wastes are DOE laboratory and processing wastes located at the Oak Ridge National Laboratory (ORNL). The waste will be processed to meet the Waste Isolation Pilot Plant (WIPP) or Nevada Test Site (NTS) waste acceptance criteria (WAC). During this project the contractor will retrieve remote handled (RH) TRU sludge from the Melton Valley Storage Tanks (MVSTs), treat and package the sludge to meet the WIPP WAC and ship the waste packages to WIPP. In addition, the contractor will receive, volume reduce and repackage solid TRU (both contact handled (CH) and RH) waste to meet the WIPP WAC and ship the waste packages to WIPP. The contractor will also receive/retrieve, treat, package supernate to meet the NTS WAC and ship the waste packages to NTS.

2.2.2 Background Summary

In August 1998, the Oak Ridge TRU Waste Treatment Project contract was awarded to Foster Wheeler Environmental Corporation (FWENC). The required 30-day report to Congress was submitted on June 30, 1998.

The privatization contract between DOE and FWENC provides for the design, construction, operation, and decontamination and decommissioning of a waste processing facility (WPF). The WPF will have the capability to treat specified Oak Ridge National Laboratory (ORNL) waste streams plus have the flexibility to treat other DOE waste streams. DOE has leased an area on the Oak Ridge Reservation to FWENC for the construction of the processing facility. This area is fenced out of and separated from the ORNL site. In addition, a new road has been constructed that allows direct access from Tennessee State Highway 95 to the construction site. This separation reduces the potential for interface issues with the M&I/M&O contractors.

The original contract identified four primary waste streams to be treated. These are listed below with both base and optional (i.e., additional) quantities for each stream:

1. 750 m³ of RH-TRU sludge (optional: up to 150 m³)
2. 600 m³ of supernate (optional: up to 1000 m³)
3. 150 m³ of RH-TRU/alpha low-level debris (optional: up to 400 m³)
4. 1000 m³ of CH-TRU debris (optional: none)

Contract waste stream quantities to be treated are being revised as part of a contract modification (#14). This contract modification will become effective early in FY 2003. Revised base and optional quantities are:

1. 750 m³ of RH-TRU sludge (optional: up to 156 m³)
2. 2,000 m³ of supernate (optional: up to 612 m³)

3. 150 m³ of RH-TRU debris (optional: 496 m³)
4. 1000 m³ of CH-TRU debris (optional: 170 m³)

The OR TRU Waste Treatment Project contract consists of four phases. Phase I B Licensing and Permitting, Phase II B Construction and Operational Testing, Phase III B Retrieval and Treatment Operations, and Phase IV B Decontamination and Decommissioning. Phases I, III and IV will be funded from the site's annual budget authority for the Defense Environmental Restoration and Waste Management appropriation, and Phase II will be funded from the site's privatization budget authority.

2.2.3 Status

The Final Environmental Impact Statement (EIS) was issued in July 2000 and the Record of Decision (ROD) was published on August 9, 2000. A new two lane access road (WIPP Road) was completed in November 1999. DOE completed extension of utilities (electricity, water, and phones) to the site in November 2000. The Phase I permitting process with the State of Tennessee is complete.

Phase II of the project started in December 2000 with the initial site preparation work, (i.e., tree removal from the site). Earthwork excavation started in mid-February 2001. As of September 30, 2002 construction of the supernate processing portion of the WPF and support facilities is well along toward turnover for pre-operational testing and cold startup. The original contract called for initiation of RH-TRU sludge and low-level supernate processing to begin in December 2002. Because WIPP is not yet open to receive RH-TRU waste, the contract is being modified (Contract Modification #14) to delay sludge processing (as well as RH-TRU debris) to January 2005. Only supernate processing is proceeding per the original contract schedule. Phase II activities related to supernate processing were completed in 2002. Readiness reviews and assessments will follow with supernate processing scheduled to start in March 2003. The remainder of Phase II activities, except for sludge retrieval system installation, are expected to be completed by June 2003. Sludge retrieval system installation will be completed by September 2004. As modified, the contract will also change the schedule for processing the remaining three waste streams. CH-TRU debris processing will begin January 2004. RH-TRU debris and RH sludge processing will begin January 2005, contingent upon WIPP being open to receive RH waste.

Systems and equipment complete or nearing completion that are required to allow supernate processing include: the facility structure, environmental and process chilled water systems, supernate processing equipment (which includes the feed tanks, pumps, supernate evaporator, and supernate dryer), steam generation system, plant and instrument air system, electrical equipment building, control room, diesel generator, the facility ventilation system and the supernate transfer line. Systems and equipment required to support the other three waste streams remaining to be completed include: sludge processing equipment (which includes feed tanks, pumps, sludge evaporator, and sludge dryer), hot cell equipment, box breakdown area, glove box train, TRUPACT II Building, NDE and NDA Systems and characterization laboratory.

In addition to changes in schedule and waste quantities, contract modification #14 will also incorporate the latest revision of the WIPP and NTS WACs. As of September 2002, no cost increases (i.e., change orders) have occurred, even though the contract has been modified 13 times to incorporate changes in Federal Acquisition Regulation, DOE regulations, and key personnel changes. However, it is expected

that contract modification #14 will result in an increase over the original project cost because the contract modification directs that additional waste volumes be processed.

2.2.4 Costs

As a result of contract modification #14, it is estimated that a total of \$137.9 million from the Defense Environmental Restoration and Waste Management appropriation will be needed to fund Phases I, III and IV. In addition, approximately \$30.2 million from the Defense Environmental Restoration and Waste Management Appropriation will be needed to fund the M&I contractor technical support throughout the life of the project. Approximately \$76.2 million from the Defense Environmental Management Privatization appropriation is funding the construction and pre-operational testing (Phase II) costs for the project. An additional \$10.8 million was made available in FY2002 for contingencies. The contract is a fixed-price/fixed-unit price contract for the estimated sum of \$214.1 million and has a targeted completion date of November 2011, assuming all project phases are exercised and all base plus optional waste quantities are processed through WPF. Phase I was accomplished under the fixed-price provisions of the contract and Phase IV will be accomplished under the fixed-price provisions of the contract. Phase III will be accomplished for a fixed-unit price. The costs associated with the OR TRU Waste Treatment Project contract awarded to FWENC are shown in Table 2-3. Also, shown in Table 2-3 are estimated cost per phase as a result of contract modification #14.

Table 2-3. OR TRU Waste Treatment Project Costs

Item	Contract Type	Original Contract Project Costs*	Contract Modification #14 Estimated Project Costs*
Phase I - Licensing and Permitting	Fixed-Price	\$24 million	\$24 Million
Phase II - Construction and Pre-Operational Testing	No Payment**	\$77 million	\$77 Million
Phase III - Treatment and Packaging	Fixed-Unit Price	\$89 million	\$110 Million
Phase IV - Decontamination and Decommissioning	Fixed-Price	\$4 million	\$4 Million
Total Project Cost	-	\$194 million***	\$215 Million***

*Includes optional waste processing for the contract.

**Construction costs reimbursed during Phase III waste treatment.

***These figures do not include M&I contractor technical support costs of approximately \$30.2 million and future contract modifications to cover contingencies.

To date, FWENC has received payment for all the required Phase I deliverables: Storm Water Permit (\$3.6 million), NEPA Data (\$6.0 million), CAA Permit (\$6.0 million), and Part B Permit (\$8.4 million), for a total of \$24 million. The Phase II privatization funds were allocated to the contract during the first quarter FY 2001, commensurate with Phase II authorization.

2.2.5 Schedule/Milestones

The FWENC project management plan was incorporated into the contract and serves as the primary milestone tracking document. To date, the project as a whole is only 2 to 3 months behind schedule as delineated in the original report to Congress. Contract modification #14 will result in completion schedule changes due to increases in waste volumes. A list of the major milestones and their new contract modification #14 completion dates is provided in Table 2-4.

Table 2-4. OR TRU Waste Treatment Project Major Milestones

Major Milestone	Date
QA Program Plan	November 16, 1998 (Completed)
Radiological Protection Plan	March 25, 1999 (Completed)
Permitting (RCRA, Construction, Air and Storm Water)	September 30, 1999 (Completed)
NEPA Draft EIS	March 3, 2000 (Completed)
Record of Decision	August 19, 2000 (Completed)
Notification of Intent to Exercise Phase II Option	August 16, 2000 (Completed)
Phase I complete	November 20, 2000 (Completed)
Final Design	March 30, 2001 (Completed)
Phase II complete	September 30, 2004
Phase III complete	June 30, 2009
Phase IV complete	November 30, 2011

2.2.6 Risk and Liability Sharing

The Government (DOE) and the contractor (FWENC) agreed to the risk parameters that each would carry at the time the contract is awarded. DOE assumed risks such as changes in law or DOE regulations, acts of God, differing site conditions, schedule performance for review and approval of various deliverables, delivering waste to the treatment facility, and ensuring that the DOE disposal sites are available to accept the treated waste product. FWENC assumed the major cost, schedule, and technical risks associated with permitting, construction and operations of the TRU processing facility. The contractor has furnished a \$24.0 million performance bond for the protection of the Government in an amount equal to 100 percent of the contract price for Phase I and a payment bond in an amount equal to \$2,500,000. The performance bond serves to protect the Government, and the payment bond protects FWENC's subcontractors in the event of a default by FWENC. The performance bond is for both Phase I (i.e., licensing and permitting) and Phase III (treatment and packaging). However, it will no longer be required after FWENC demonstrates successful performance by treating TRU sludge and solids in Phase III. The payment bond was only for Phase I of the project. The Government could have required additional performance bond protection if the contract price was increased by means of a change order during Phase I. (The Government issued seven contract change orders with no cost increases during Phase I.) In addition, the OR TRU Waste Treatment Project contract makes the contractor responsible for fines and penalties when its action or inaction is cause for delays or failures to meet regulatory milestones and requirements.

Finally, DOE and FWENC have a process where both parties identify risk factors at each monthly review meeting and establish alternatives to mitigate the risk. Actions normally occur on both parties' behalf to reduce and/or remove risk variables.

2.2.7 Issues

The RCRA permit for WIPP currently does not authorize the disposal of RH-TRU mixed waste. DOE's Carlsbad Field Office is in the process of requesting a permit modification from the New Mexico Environment Department (NMED) which would allow disposal of RH-TRU mixed waste. RH-TRU waste was scheduled in the original contract to be shipped to WIPP from Oak Ridge in January 2003. Contract modification #14 will reschedule initiation of RH-TRU waste delivery from WPF to WIPP starting potentially in early 2005.

Another issue is the drum age criteria (DAC) requirements for shipping CH TRU to WIPP. Current WIPP WAC requires WIPP ready headspace gas sampling approximately 142 days after the waste package is ready. This will require building a storage capacity for the waste packages, increased waste package handling and associated ALARA concerns and increased costs. The project baseline assumes a zero day delay for sampling.

2.3 Oak Ridge Reservation Environmental Management Waste Management Facility Project

2.3.1 Purpose

The purpose of this project is to construct an onsite waste disposal facility called the Environmental Management Waste Management Facility (EMWMF). The EMWMF is an above-ground earthen facility with the capability to safely isolate low level radioactive waste and low level mixed waste from the environment. The first 400,000 cubic yards (yd³) increment of disposal capacity began operations in May 2002. The waste materials (soil, sediment, and debris) being disposed originate from buildings and facilities scheduled for decontamination and decommissioning because they are contaminated with low-level radioactive waste, hazardous waste, and combinations thereof. The next increment of capacity is an 800,000 yd³ build-out to bring the total capacity to 1,200,000 yd³.

2.3.2 Background Summary

The critical element in DOE's comprehensive cleanup strategy for the Oak Ridge Reservation (ORR) is addressing the need for disposal capacity for waste that will be generated from the cleanup of former waste sites and decommissioned facilities. DOE performed a detailed analysis that supported the decision to construct the EMWMF. This analysis, conducted pursuant to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 incorporated both regulatory and public participation in the decision making process. DOE's ORR M&I contractor (Bechtel Jacobs Co., LLC) is implementing the EMWMF Project.

The separate subcontractors conducting remediation activities at the individual cleanup sites on the ORR are delivering waste to the EMWMF. Since the Waste Generation Forecast indicates that the initial 400,000 yd³ disposal cell will be filled in FY 05, DOE is preparing to construct additional disposal capacity at the existing facility location. This is being accomplished through a new privatization solicitation and contract award, scheduled to be bid in March 2003 and awarded in July 2003. The balance of the project, to provide additional disposal capacity beyond the 1,200,000 yd³, will utilize appropriated funds instead of privatization funds. The latest waste generation forecasts are projecting that up to 2,500,000 yd³ of disposal capacity may be needed to complete the cleanup of the ORR. Additional capacity will be constructed in increments, as needed. At the end of operations, the EMWMF will be closed and secured with a multi-layer cap that will minimize infiltration of precipitation and require minimal maintenance. According to a previous agreement, the Tennessee Department of Environment and Conservation (TDEC) will implement long-term surveillance and maintenance activities at the EMWMF after closure.

The EMWMF is located in Bear Creek Valley, just west of the Oak Ridge Y-12 Plant. The site is in an area that has been used for several decades by the Y-12 Plant for waste management activities. Site preparation activities included removal of marketable timber within the site boundary and relocation of all existing power/utility lines and two waste storage facilities.

2.3.3 Status

The required report outlining the project and contract structure for the first 400,000 yd³ increment was submitted to Congress on October 1, 1999. During the 30-day review/notification period, TDEC issued a Commissioner's Order that established the creation of a trust fund that will be the source of funding for TDEC to implement the long-term surveillance and maintenance of the EMWMF. With the Commissioner's Order in place, DOE, the EPA, and TDEC signed the Record of Decision for this project on November 2, 1999. The Record of Decision is a CERCLA-required document that authorizes the design, construction, operation, and closure of the EMWMF.

The award of the EMWMF subcontract to Duratek Federal Services, Inc. (DFS), formerly known as Waste Management Federal Services, Inc., occurred on December 6, 1999 to design both a 400,000 yd³ facility and a 1.3 million yd³ facility, as well as to construct and operate the initial 400,000 yd³ cell. Optional scope included closure of the 400,000 yd³ facility, in the event the decision was made not to pursue the project further.

The final design was submitted on January 10, 2001 as part of the Remedial Design Report/Remedial Action Work Plan to the EPA and TDEC for review. Periodic progress review meetings were conducted to ensure clear communications between the M&I contractor and DFS. Additionally, DOE, the M&I contractor, EPA, and TDEC established a Remedial Design Work Group (RDWG) to review project status; evaluate design, construction, and operations issues; consider waste generation activities from site cleanup projects; and build consensus before formal regulatory reviews and approvals.

DFS completed construction of the 400,000 yd³ facility in April 2002, and the first load of waste was disposed there in May 2002. The subcontractor earned back its privatized investment by disposing of waste delivered by other subcontractors. By September 2002, all of the 96,000 tons of waste required for payback had been disposed. Disposal operations are ongoing.

2.3.4 Costs

The subcontract between the M&I contractor and DFS is a fixed-price, performance-based subcontract for the design of both a 400,000 yd³ facility and a 1.3 million yd³ facility, the construction and operation of the initial 400,000 yd³ cell, and the optional closure of the 400,000 yd³ cell. Table 2-5 provides a breakdown of the capital facility construction funding for the project.

Table 2-5. Oak Ridge Reservation EMWMF Project Capital Facility Construction Costs

Item	Contract Type	Project Costs
1.3 million yd ³ Capacity Design and the Construction of the Initial 400,000 yd ³ Cell	Fixed-Price, Performance Based	\$24 million (actual)
Option for Outyear Capping and Closure of the 400,000 yd ³ Cell.	Fixed-Price, Performance Based	Not exercised
Current Total Funding for Capital Construction Portion of Subcontract (funded through the Defense Environmental Management Privatization Appropriation)	N/A	\$45.5 million
Available funding for 800,000 yd ³ build-out	Fixed-Price, Performance Based	\$21.5 million

Repayment of DFS's equity investment to cover design and construction was amortized through payment for the disposal of the first 96,000 tons of waste delivered to the facility during initial operations. Payment was calculated by dividing DFS's total price for design and construction of the 400,000 yd³ cell by 96,000 tons.

The subcontract with DFS is currently valued at \$44,549,000. Funding for the EMWMF project capital facility construction is provided through the Defense Environmental Management Privatization Appropriation. The actual cost for the capital facility portion (initial 400,000 yd³) of this subcontract was \$24,044,000. Non-capital, expense-funded activities under this subcontract amount to \$20,505,000, which are to be paid over the balance of the operations period through the Defense Environmental Restoration and Waste Management Appropriation. Expense-funded activities include mobilization, bonding costs, operations, and off-season (winter shutdowns) maintenance and monitoring costs.

The actual cost for the capital facility portion of this subcontract came in at \$24,044,000. With the \$26,050,000 of privatization funding in the 2002 budget added to the \$19,500,000 from prior year funding, the total privatization funding for the project stands at \$45,550,000. Subtracting the actual capital cost for the first increment leaves \$21,506,000 to complete the 800,000-yd³ build-out. There is no additional privatized funding anticipated for this project. Thus, there is no additional privatized scope beyond the imminent build-out.

The experience gained during the first phase of the EMWMF project has instigated a change in the approach for payback of the subcontractor's privatized investment for the 800,000-yd³ build-out. Operations will not be the vehicle to effect payback. To do so would require that the completion of construction of the build-out can be timed to exactly coincide with the disposal of the 400,000th cubic yard of waste in the initial increment of the EMWMF. Otherwise, the site would have two waste disposal subcontractors competing for waste; the first of whom is being paid a base monthly rate and the second of whom would be trying to recoup its privatized investment. The true performance of a disposal cell is measured by how it can safely isolate the waste from the environment. The only real-time means of gauging this long-term performance is the quality assurance and quality control testing conducted during

construction, and the subsequent acceptance by the regulators of those test results that releases the facility for operation. Thus, the requirement for the build-out subcontractor to be paid for its investment is regulatory acceptance of the Construction Completion Report containing all of the quality documentation from construction.

2.3.5 Schedule/Milestones

Table 2-6 shows the current schedule for the EMWMF subcontract, including the major project milestones. DFS is required to complete the work under its subcontract on or before the dates shown in this table.

Table 2-6. Oak Ridge Reservation EMWMF Project Major Milestones

Major Milestones	Date
Notice to Proceed	January 14, 2000 (completed)
Submit 90 percent design documentation	May 29, 2000 (completed)
Submit Issued for Construction (IFC) design package	January 10, 2001 (completed)
Begin construction of the initial 400,000 yd ³ cell	January 15, 2001 (completed)
Complete existing facilities relocation	August 3, 2001 (completed)
Complete utilities redistribution	June 1, 2001 (completed)
Complete construction of the initial 400,000 yd ³ cell	March 11, 2002 (completed)
Begin waste disposal operations; initial 400,000 yd ³ cell	May 1, 2002 (completed)
Complete disposal of 96,000 tons for privatized payback	September 17, 2002 (completed)
Award subcontract for 800,000 yd ³ build-out	May 2003
Submit IFC design package for build-out	December 2003
Begin construction of the 800,000 yd ³ build-out	January 2004
Complete construction of the 800,000 yd ³ build-out	November 2004
Complete waste disposal operations; initial 400,000 yd ³ cell	January 2005
Complete waste disposal operations in the 800,000 yd ³ build-out	March 2007

2.3.6 Risk and Liability Sharing

The subcontractor for the build-out will carry the majority of overall project risk through completion of design and construction of the build-out. Utilization of the subcontractor's capital investment as part of the overall financing package for the design and construction of this build-out provides significant incentives for performance. Project success can be defined as satisfactory performance of the subcontractor in meeting schedule commitments and deliverables as stipulated in the subcontract. In accordance with the performance requirements stated in the subcontract, recovery of the subcontractor's capital investment is tied to meeting all contract commitments. This provides a significant incentive for the subcontractor to fulfill all subcontract commitments. The M&I Contractor will verify that all performance requirements have been met prior to initiating subcontractor payment.

A brief discussion of the project risk areas allocated to the parties involved and risk mitigation approach is presented below:

Subcontractor Risks

Because the subcontractor will use its own capital for design and construction of the EMWMF build-out, it bears all of the risk associated with design and construction of the project, along with risks related to technology and environment, safety and health. It is in these areas that the subcontractor can exercise the most control during execution of the subcontract and therefore accept the risk that could influence repayment of its capital investment.

M&I Contractor Risks

The M&I contractor bears the risk of managing the independent quality assurance subcontractor to conduct the testing required to compile the Construction Completion Report. To mitigate this risk, the same incremental approach that was used in the initial construction phase will be repeated. As each major component (e.g., compacted clay liner, primary geosynthetic liner, etc.) is completed, an Incremental Completion Report (ICR) will be prepared that provides the quality assurance documentation and data associated with that component for regulator review and approval. At the end of construction, a Construction Completion Report will be prepared using the previously approved ICRs.

2.3.7 Issues

There are no material issues currently affecting the EMWMF project.

2.4 Idaho Spent Nuclear Fuel Dry Storage Project

2.4.1 Purpose

This project requires the contractor to furnish all goods and services necessary to repackage and maintain selected DOE-owned spent nuclear fuel (SNF) at the Idaho National Engineering and Environmental Laboratory (INEEL) in DOE standard canisters for interim storage suitable for off-site transportation. The Nuclear Regulatory Commission (NRC) will license this new facility. The fuel to be stored under this contract consists of Peach Bottom, Light Water Breeder Reactor (LWBR) and Training, Research, Isotope Production General Atomics (TRIGA) SNF.

2.4.2 Background Summary

During the last 46 years, DOE and its predecessor agencies have generated, transported, received, stored, and reprocessed SNF at facilities in DOE's nationwide complex. This SNF was generated from various sources, including: DOE's production reactors; Naval reactors; other Government and university research and test reactors; special-case reactors, (e.g., demonstration commercial power reactors); and foreign research reactors. A significant portion of the SNF from these reactors has been managed at INEEL.

In 1992, DOE initiated a phase-out of fuel reprocessing at the INEEL that recovered highly enriched uranium from SNF. The spent fuel mission subsequently changed from reprocessing to interim fuel storage. Nearly all of the SNF at INEEL was originally destined for reprocessing, and consequently was stored under conditions acceptable for short-term storage. The decision to stop reprocessing SNF at INEEL resulted in a need for facilities to store SNF significantly longer than the design limits of existing facilities. SNF storage conditions, particularly underwater storage, have been of concern to the State of Idaho because of the location of underwater storage over the Snake River Plain Aquifer, a sole source aquifer pursuant to Section 1424(e) of the Safe Drinking Water Act (*Federal Register* Part IV, Environmental Protection Agency, dated October 7, 1991 pages 50634-50638). The 1995 Idaho Settlement Agreement and Consent Order requires that all SNF at the INEEL be transferred out of wet storage by December 31, 2023. All SNF, including the Navy and Three Mile Island fuels, must be removed from Idaho by January 1, 2035. Due to the quantity of fuel stored at the INEEL, the transfer out of Idaho must begin years in advance of the 2035 milestone.

The fuel selected for this contract is primarily intact and well characterized, from NRC-licensed reactors or fuel previously reviewed by the NRC for transportation to the INEEL. The fuel types have been selected to reduce the contract risk associated with unknown fuel conditions. Fuel is currently stored in aging aboveground facilities, in below grade storage pools and underground dry storage.

In November 1999, DOE awarded to award a fixed-price/fixed-unit price contract with a cost plus fixed fee component to Foster Wheeler Environmental Corporation (FWENC). Pursuant to Section 3132 of the National Defense Authorization Act for Fiscal Year 1998, a report on the contract was submitted to Congress on January 14, 2000. 2000

The contract work is divided into the following phases:

- Phase I-A: Design, preparation of Safety Analysis Report (SAR) and License Application
- Phase I-B: NRC review and comment on License Application and SAR
- Phase II: Facility construction and start-up; includes receipt, repackaging and storage of 36 fuel elements in the NRC licensed Independent Spent Fuel Storage Installation (ISFSI)
- Phase III: Transfer and storage for the balance of fuel contracted for storage in the ISFSI

Work under the contract must conform to NRC requirements. The contractor will be the NRC licensee and shall design, license, construct, and operate an SNF dry transfer facility and an independent spent fuel storage installation to receive, process and transfer fuel into the dry storage units. The facility will have the capability to receive a variety of shipping casks to accommodate fuel receipts beyond those in the current scope.

2.4.3 Status

FWENC submitted its license application to the NRC in November 2001 as scheduled. The NRC docketed the license application for review in March 2002, and provided a schedule for its SAR review that would result in issuing the license in March 2004. FWENC continued with design of the facility and preparation for the first Request for Additional Information (RAI) from the NRC technical review of the SAR and License Application. The design is currently 90% complete. FWENC received the first RAI from the NRC October 25, 2002. A second RAI is expected early in 2003.

Regulations require the NRC to prepare an Environmental Impact Statement (EIS). The scoping period closed September 16, 2002. FWENC and DOE completed an environmental review presentation to the NRC and its contractors to kick off development of their Draft EIS. The Draft EIS is scheduled for release May 2003 with the Final EIS targeted for December 2003.

The following project accomplishments were made in 2002:

- Acceptance of Phase IA Deliverable for Payment
- Project Management Plan, Revision 4
- FWENC 90% Senior Design Review
- NRC Approval of FWENC Quality Project Plan
- Negotiation of all outstanding Requests for Equitable Adjustment

2.4.4 Costs

The funding requirements for capital and operating costs for receipt, processing and storage are summarized in Table 2-7. A total project cost estimate of \$273,027,000 is based on the contractor's proposed price of \$217,409,000 in FY 1999 dollars, adjusted by \$55,618,000 for contract clauses that will increase costs. Contractual clauses provide for cost reimbursement for NRC licensing activities (Phase I-B), economic price adjustments (Phases II and III) and incentives for early completion. The estimate also reflects risk that remains with DOE consistent with the terms of the contract. Phase I-A will be accomplished under the fixed-price provisions of the contract, Phase I-B will be cost plus fixed-fee, and Phases II and III will be accomplished for a fixed-unit price.

Table 2-7. Idaho Spent Nuclear Fuel Dry Storage Project Costs

Item	Contract Type	Current Estimated Project Costs
Phase I-A B Design, NRC License Application, Preparation and Submittal	Fixed-Price	\$67.1M
Phase I-B B NRC Licensing	Cost Plus Fixed-Fee	\$5.5M
Phase II B Fabrication, Construction and Start-up	Fixed-Unit Price (Phase II cost is amortized over 800 Peach Bottom fuel handling units [FHUs] paid during Phase III)	\$113.9M
Phase III B Fuel Handling, Packaging and Storage Operations	Fixed-Unit Price	\$30.9M
Adjustments for estimated contract incentive, economic price adjustments, Phase I-B government estimate of most probable cost, and residual risk to the government.	N/A	\$55.6M
Total Project Cost*		\$273.0 M

*Operating and Privatization Funding Sources combined total

2.4.5 Schedule/Milestones

Table 2-8 provides a schedule of the major milestones for the Spent Nuclear Fuel Dry Storage Project.

Table 2-8. Idaho Spent Nuclear Fuel Dry Storage Project Major Milestones

Major Milestone*	Date
Phase I-A: Initiate Design and License Application Preparation	May 19, 2000 (completed)
Submit NRC License Application	November 2001 (completed)
Phase I-B: NRC License Issued	July 2003**
Phase II: Construction Start	February 2004
Construction Completion	December 31, 2005
Phase III: Commence Operations***	December 31, 2005
Contract Complete	April 2010

* Completion of Phase II (December 31, 2005) and contract completion (April 2010) are contract milestone dates. Other dates are provided as information only.

** The recently received NRC schedule for license review indicates the license would be issued in March 2004, which could impact the start of construction and subsequent milestone dates.

*** Commence Operations: The FWENC working schedule date is June 2005, six months ahead of the contract date.

2.4.6 Risk and Liability Sharing

Technical

Phase I-A B Design, NRC License Application Submittal. The contractor is required to work directly with the State of Idaho to obtain permits for the proposed facility. Compliance with permit conditions is the responsibility of the contractor. The contractor was responsible for preparing and submitting the NRC license application, including the SAR, consistent with regulations in place at the time the contract was signed. DOE retains the cost and schedule risk related to changes in regulations after the contract was signed. The degree of conservatism in design and licensing approach is the responsibility of the contractor. The amount of rigor applied to development of the SAR and the license application will influence the acceptability of the application by the NRC and the ease of the licensing process.

Phase I-B B NRC Licensing. The contractor is responsible for answering all NRC requests for additional information and for providing support to the NRC in completing the licensing and NEPA processes. The quality and timeliness of information submitted to the NRC are the sole responsibility of the contractor. The contractor is responsible for obtaining any environmental permits that are required, and will hold the NRC license and permits.

Phase II B Fabrication, Construction and Start-up. DOE has the obligation to perform occupational safety and health oversight of the contractor during the construction of the facility. Consistent with the contract, DOE must also provide utilities to the boundary of the project site. The NRC regulates the nuclear safety aspects of the project. The NRC will inspect the contractor to ensure that the construction and fabrication of elements of the facility important to nuclear safety are in accordance with approved drawings and specifications. The State of Idaho will ensure environmental compliance of all pertinent permits. The contractor must follow a DOE-approved Environment, Safety and Health Plan, as well as the NRC license and permit conditions.

Phase III B Fuel Handling, Packaging and Storage Operations. DOE has the obligation to perform regulatory oversight over non-nuclear aspects during operation of the facility. DOE must also make the spent nuclear fuel available to the contractor on a timely basis, consistent with the contract. The NRC has regulatory authority over nuclear safety on this project. The State of Idaho and EPA will oversee and enforce environmental compliance. The contractor must follow its DOE-approved Environment, Safety and Health Plan, and the NRC license and permit conditions. The contractor is responsible for any fines and penalties resulting during operation of the facility.

Financial

Private financing transfers much of the performance risk from the government to the contractor, and has the potential to reduce the project's overall cost because it encourages the contractor, who has its own money at risk, to be more efficient. Because the contractor's recovery of its investment is dependent on performance, it will have a greater incentive to perform.

The parent company, Foster Wheeler USA, has signed a Performance Guarantee Agreement that is part of the contract. The parent company, in signing this Agreement, is assuring that the performance, duties, and responsibilities of the contractor, FWENC, will be satisfactorily fulfilled. It is also worth noting that earlier in 2002, Foster Wheeler USA, the parent company of FWENC, appeared to be having financial difficulty. While DOE continues to monitor the situation, FWENC is proceeding with the project consistent with the terms and conditions of the contract.

Incentive and liquidated damage clauses will provide assurance that the schedule performance is optimized. Equity in the project and third party financing provides incentive to perform on schedule and within cost parameters. The contract date for the initiation of fuel transfers is December 31, 2005. Earlier transfer to new, more efficient dry storage is to DOE's advantage. For each day the contractor can improve the schedule by successful fuel storage in a NRC-licensed Independent Spent Fuel Storage Installation, an incentive will be paid to the contractor. For each day initiation of fuel storage is delayed, the contractor will be responsible for liquidated damages.

DOE retains responsibility for costs related to certain risks, including changes in NRC regulations, providing utilities to the project site, and making spent nuclear fuel available to the contractor as required by the contract.

2.4.7 Issues

The most important issue facing the project is EM's current reevaluation of the strategy for removing DOE's SNF from the state of Idaho. The current strategy involves using the privatization facility to place the SNF in standard canisters and shipping the canisters to a geologic repository by rail. EM is currently examining alternatives to that strategy that may be less expensive (e.g., shipping all or some of the SNF to the geologic repository without placing the SNF in standard canisters). If the current strategy is changed and standard canisters are not used or are used to a much lesser extent, the role of

the privatized facility would come into question and this role is part of EM's reevaluation. EM expects to complete the reevaluation in 2003.

2.5 Carlsbad Remote-Handled Transuranic (RH-TRU) Waste Transportation Project

2.5.1 Purpose

The purpose of this project is to have RH-TRU waste shipping casks fabricated that are NRC-certified Type B (M) packages and that are fabricated under a quality assurance program approved by the NRC. The RH-72B shipping cask meets this requirement and will be used to ship RH-TRU waste to the Waste Isolation Pilot Plant (WIPP). Twelve RH-72B shipping casks will be fabricated with an option available to procure up to eight additional casks and spare parts. Contract options have been exercised for two spare inner vessels.

2.5.2 Background Summary

Congress authorized WIPP in 1979 as the nation's first facility for the geologic disposal of transuranic (TRU) waste. TRU waste results primarily from plutonium reprocessing and fabrication, as well as from research activities at DOE defense installations. TRU waste is defined by the WIPP Land Withdrawal Act (LWA), Public Law 102-579, as waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes with half-lives greater than 20 years per gram of waste. TRU waste is further classified as contact-handled (CH) or remote-handled (RH) waste based on the surface dose rate of each disposal container. RH-TRU waste is waste with a surface dose rate of 200 millirem per hour or greater. The WIPP LWA limits the maximum surface dose rate for RH-TRU waste at the WIPP to 1,000 rems per hour.

The WIPP facility, located 26 miles (42 kilometers) east of Carlsbad, New Mexico, consists of surface support buildings, a waste handling building, four shafts, and the excavated underground repository. The repository is 2,150 feet (approximately 655 meters) below the surface facilities and is authorized to dispose of a total of 6.2 million ft³ (approximately 175,600 m³) of TRU waste. DOE will limit RH-TRU waste disposed of at WIPP to 7,080 m³. The Department currently stores and generates TRU waste at 27 sites across the United States. Eleven of these sites store or generate RH-TRU waste. There are approximately 2,200 m³ of retrievably stored RH-TRU waste in inventory at these sites. In addition, an estimated 2,175 m³ of RH-TRU waste will be generated in the course of continuing DOE operations and cleanup. After treatment and packaging, the amount of RH-TRU waste project to be disposed of at WIPP is estimated at 2,840 m³. This accounts for approximately 40 percent of the WIPP RH-TRU waste capacity.²

The WIPP LWA established a regulatory framework for WIPP. One of the requirements established by the WIPP LWA was that TRU wastes shipped to WIPP be transported in Nuclear Regulatory Commission (NRC) certified packaging. The RH-72B shipping cask meets this requirement and will be used to ship RH-TRU waste to WIPP. The RH-72B cask design is based on the 125B-shipping

²*The National TRU Waste Management Plan, DOE/NTP-96-1204, Revision 3, July 2002.*

cask that was used in the removal of waste from the Three Mile Island nuclear power plant. The Remote-Handled Transuranic Waste Transportation Services Project is the mechanism being used to procure RH-72B shipping casks.

Currently, DOE estimates that it will take 35 years to fill the WIPP repository. The waste disposal area of WIPP consists of eight panels, each of which contains seven rooms. In addition, the drifts that provide access to the panels will be used for waste disposal as the panels are filled. RH-TRU waste in canisters is disposed of in horizontal boreholes on 8-foot centers drilled into the walls or "ribs" of the disposal rooms before CH-TRU waste drums are stacked in the disposal rooms.

2.5.3 Status

The required report on this privatization project was submitted to Congress on July 14, 2000. After the 30-day review/notification period elapsed, DOE awarded two contracts for the fabrication of RH-72B shipping casks. NAC International (NAC) from Norcross, Georgia, and Packaging Technology, Inc. (PacTec) from Tacoma, Washington, will each fabricate six RH-72B shipping casks with the potential for more work if DOE exercises the contract options. As of November 2002, DOE has accepted four RH-72B casks from PacTec. One additional cask from PacTec is in review, and the first cask from NAC is in review.

2.5.4 Costs

Both contracts for the fabrication of RH-72B shipping casks are fixed-unit price contracts. The total project cost is estimated at \$14.428 million. Table 2-9 provides a breakdown of the funding for the project. The fabrication of the RH-72B shipping casks will be funded from privatization budget authority, while contract oversight, shipping, acceptance, and maintenance of the casks will be funded from appropriated WIPP operational funds.

Table 2-9. Carlsbad RH-TRU Waste Transportation Project Funding

Item	Contract Type	Current Estimated Project Costs
Fabrication Cost of 12 RH-72B Shipping Casks and Exercising Contract Option for 8 Shipping Casks and Spare Parts	Fixed-Unit Price	\$12.2 million
Contract Oversight, Shipping, and Acceptance/Maintenance of the Casks	Fixed-Unit Price	\$2.2 million
Total Project Cost	N/A	\$14.4 million

The Government cost estimate was \$15.513 million. No outlays of privatization funds will occur until DOE accepts shipping casks that meet NRC requirements.

2.5.5 Schedule/Milestones

Table 2-10 displays the current schedule for the project, including the major project milestones.

Table 2-10. Carlsbad RH-TRU Waste Transportation Project Major Milestones

Major Milestone	Date
Congressional Report issued	July 14, 2000 (completed)
Contracts awarded	August 14, 2000 (completed)
Fabrication and Management Plans submitted by contractors for review	October 31, 2000 (completed)
Fabrication and Management Plans approvals	January 2001 (completed)
Contractors initiate fabrication	February 2001 (completed)
Onsite DOE quality inspections to monitor fabrication	February 2001 (ongoing)
First RH-72B cask accepted	March 2002 (completed)
Contracts complete (including all options). Options would extend the contract from March to September	September 2003

2.5.6 Risk and Liability Sharing

The contractors will assume the following responsibilities under both contracts:

- All TRU waste shipping casks are NRC-certified Type B(M) packages and are fabricated under a quality assurance program approved by the NRC.
- Shipping casks must meet all of the requirements of the NRC Certificate of Compliance and Safety Analysis Report.
- Progress payments will not be made; payment occurs upon DOE acceptance of shipping costs.

DOE responsibilities in execution of the contract include:

- DOE will inspect, accept, and provide payment at the price agreed upon in the contract.
- DOE will submit certificate of compliance amendments to the NRC, as required.
- DOE will provide quality assurance oversight. DOE will have an onsite quality inspector during fabrication of the initial six casks at each vendor. At a minimum, a DOE representative will be present at the acceptance testing and specified witness points for all casks.

2.5.7 Issues

There are no pending issues that directly impact the fabrication of the RH-72B casks.

Attachment

"National Defense Authorization Act for Fiscal Year 1998," Title XXXI, Subtitle C, Sec. 3132, Defense Environmental Management Privatization Projects

(a) **AUTHORITY TO ENTER INTO CONTRACTS.** — The Secretary of Energy may, using funds authorized to be appropriated by section 3102 (i) for a project referred to in that section, enter into a contract that —

- (1) is awarded on a competitive basis;
- (2) requires the contractor to construct or acquire any equipment or facilities required to carry out the contract;
- (3) requires the contractor to bear any of the costs of the construction, acquisition, and operation of such equipment or facilities that arise before the commencement of the provision of goods or services under the contract; and
- (4) provides for payment to the contractor under the contract only upon the meeting of performance specifications in the contract.

(b) **NOTICE AND WAIT.** —

- (1) The Secretary may not enter into a contract under subsection (a), exercise an authorization to proceed with such a contract or extend any contract period for such a contract by more than one year until thirty days after the date on which the Secretary submits to the congressional defense committees a report with respect to the contract.
- (2) Except as provided in paragraph (3), a report under paragraph (1) with respect to a contract shall set forth —
 - (A) the anticipated costs and fees of the Department under the contract, including the anticipated maximum amount of such costs and fees;
 - (B) any performance specifications in the contract;
 - (C) the anticipated dates of commencement and completion of the provision of goods or services under the contract;
 - (D) the allocation between the Department and the contractor of any financial, regulatory or environmental obligations under the contract;
 - (E) any activities planned or anticipated to be required with respect to the project after completion of the contract;
 - (F) the site services or other support to be provided the contractor by the Department under the contract;
 - (G) the goods or services to be provided by the Department or contractor under the contract, including any additional obligations to be borne by the Department or contractor with respect to such goods or services;

- (H) if the contract provides for financing of this project by an entity or entities other than the United States, a detailed comparison of the costs of financing the project through such entity or entities with the costs of financing the project by the United States;
 - (I) the schedule for the contract;
 - (J) the costs the Department would otherwise have incurred in obtaining the goods or services covered by the contract if the Department had not proposed to obtain the goods or services under this section;
 - (K) an estimate and justification of the cost savings, if any, to be realized through the contract, including the assumptions underlying the estimate;
 - (L) the effect of the contract on any ancillary schedules applicable to the facility concerned, including milestones in site compliance agreements;
 - (M) the plans for maintaining financial and programmatic accountability for activities under the contract.
- (3) In the case of a contract under subsection (a) at the Hanford reservation, the report under paragraph (1) shall set forth —
- (A) the matters specified in paragraph (2); and
 - (B) if the contract contemplates two pilot vitrification plants—
 - (i) an analysis for the basis for selection of each of the plants in lieu of a single pilot vitrification plant; and
 - (ii) a detailed comparison of the costs to the United States of two pilot plants with the costs to the United States of a single pilot plant.

(c) COST VARIATIONS —

- (1)
 - (A) The Secretary may not enter into a contract for a project referred to in subparagraph (B), or obligate funds attributable to the capital portion of the cost of such a contract, whenever the current estimated cost of the project exceeds the amount of the estimated cost of the project as shown in the most recent budget justification data submitted to Congress.
 - (B) Subparagraph (A) applies to the following:
 - (I) A project authorized by section 3102(I).
 - (ii) A project authorization by section 3103 of the National Defense Authorization Act for Fiscal Year 1997 (Public Law 104-201; 110 Stat. 2824) for which a contract has not been entered into as of the date of enactment of this Act.
- (2) The Secretary may not obligate funds attributable to the capital portion of the cost of a contract entered into before such date for a project authorized by such section 3103 whenever the current estimated cost of the project equals or exceeds 110 percent of the amount of the estimated cost of the project as shown in the most recent budget justification data submitted to Congress.

(d) USE OF FUNDS FOR TERMINATION OF CONTRACT. — Not later than 15 days before the Secretary obligates funds available for a project authorized by section 3102(I) to terminate the contract for the project under subsection (a); the Secretary shall notify the congressional defense committees of the Secretary's intent to obligate the funds for that purpose.

(e) ANNUAL REPORT ON CONTRACTS. —

- (1) Not later than February 28 of each year the Secretary shall submit to the congressional defense committees a report on the activities, if any, carried out under each contract referred to in paragraph (2) during the preceding year. The report shall include an update with respect to each such contract of the matters specified under subsection (b)(1) as of the date of the report.
- (2) A contract referred to in paragraph (1) is the following:
 - (A) A contract under subsection (a) for a project referred to in that subsection.
 - (B) A contract under section 3103 of the National Defense Authorization Act for Fiscal Year 1997.

(f) ASSESSMENT OF CONTRACTING WITHOUT SUFFICIENT APPROPRIATIONS. — Not later than 90 days after the date of enactment of this Act, the Secretary shall submit to the congressional defense committees a report assessing whether, and under what circumstances, the Secretary could enter into contracts for defense environmental management, privatization projects in the absence of sufficient appropriations to meet obligations under such contracts without thereby violating the provisions of section 1341 of title 31, United States Code.